PRZEWALSKIA MAXIM. (SOLANACEAE)—A NEW GENERIC RECORD FOR INDIA

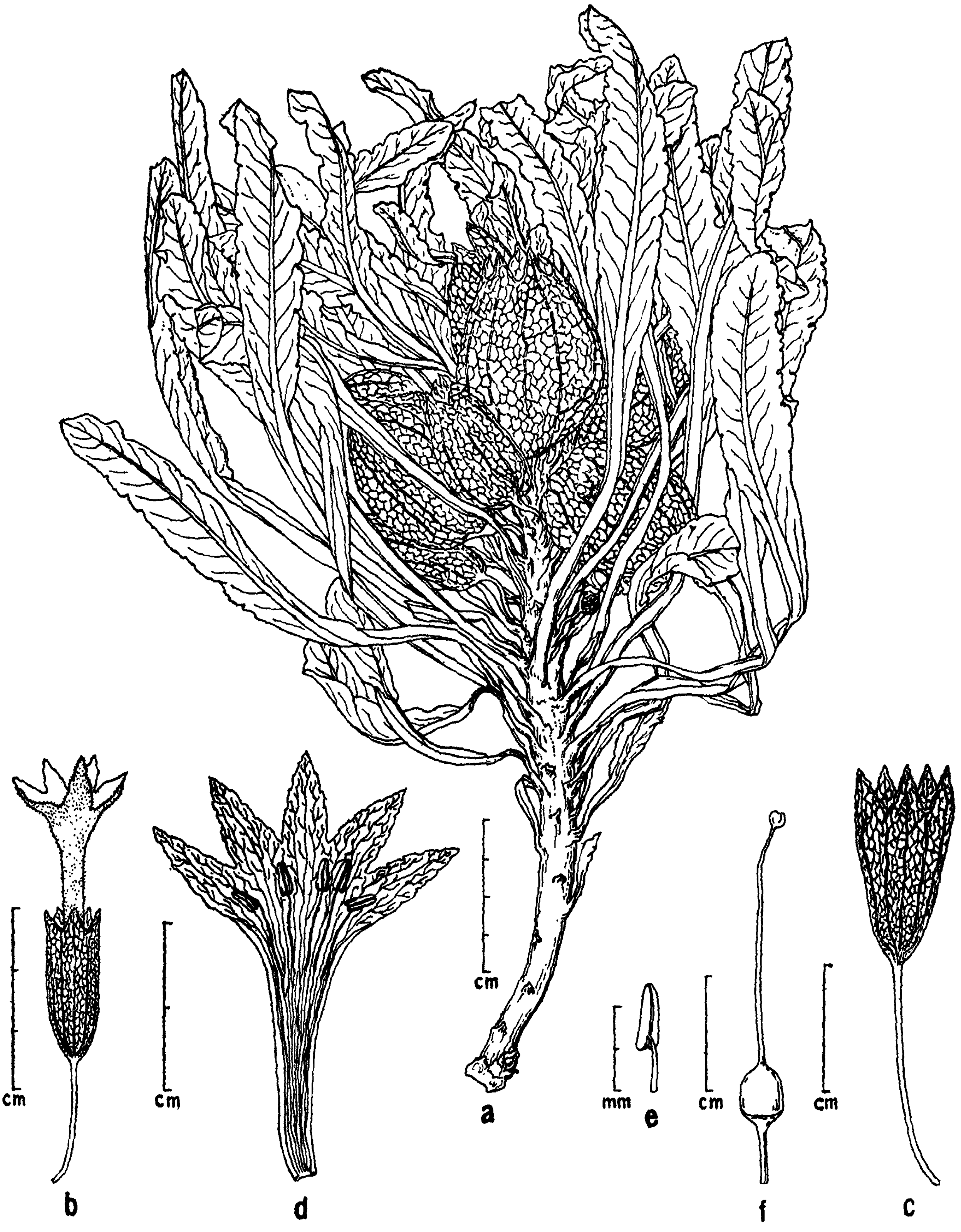
Przewalskia Maxim. a monotypic genus represented by *P. tangutica* Maxim. has been collected for the first time from Sikkim Himalaya. It is included in the subtribe *Hyoscyaminae* (Lu & Zang, 1986), essentially Asiatic in distribution, characterised by curved embryo, imbricate corolla lobes, greatly enlarged fruiting calyx which is reticulate veined, indurated and enclosing a capsule with circumscissile dehiscence. This species considered to be endemic to China is a rich source of tropane group of alkaloids and is known by the name '*Ma Niao Peo*' in Chinese traditional medicine. It is reported to have analgesic, antitoxic, anti-inflammatory and antispasmodic properties. According to Hsiao (1981) the species contains tropane alkaloid compounds like hyoscyamine, scopolamine, anisodamine and anisodine and also non-tropane alkaloid bellaradine.

The genus *Przewalskia* was described by Maximowicz (1882) based on the collections of *Przewalski* from Tangut in China.

The present record from higher alpine zone of Sikkim adjoining Tibetan plateau indicates that it will be worthwhile to explore the possibility of using the plant as a potential source of tropane alkaloids in our country. However, care should be taken not to overexploit the wild source endangering the very existence of the species as it is so far known only from 2 populations in N. Sikkim.

Przewalskia tangutica Maxim. in Bull. Acad. Imp. Sci. St. Petersb. 27 : 507. 1882 ; Forbes & Hemsley in J. Linn. Soc. 26 : 177. 1889 ; Lu & Zhang in D' Arcy, Solan. Biol. Syst. 66. 1986-Type : China occidentalis, Regio Tangut, Prov. Kansu, alt. 11-12000 ft. May 1880, *N. M. Przewalski s.n.* (LE).

Erect, succulent herb, 20-35 cm tall, simple or branched, glandular pubescent; rootstock thick, somewhat tuberous ; stem poorly developed, mostly embedded in soil except for 6-10 cm long leaf-bearing portion. Leaves scale-like at base, gradually transforming into distinct leaves above, simple, alternate, distantly placed in flowering, crowded on stem in fruiting giving head-like appearance ; petioles 3-5 cm long, fleshy, glandular pubescent ; lamina 10-12 x 1.8-2.3 cm, obovate-oblong, cuneate at base, undulate, distinctly ciliate, obtuse to rounded at apex, glandular pubescent on both surfaces, densely towards apex and margin ; midrib 2.5-3.0 mm broad at base, gradually narrowing towards tip, lateral veins many, slender, forming distinct reticulation. Flowers yellow, solitary, axillary, 4.5-5.0 cm long ; pedicels 2.2-2.5 cm long, sparsely glandular pubescent. Calyx membranous, green, tubular, 1.2-1.5 cm long, 3-5 mm across, reticulately veined, glandular pubescent without, glabrous within ; lobes 2.5-3.0 x 2.0 mm, narrowly triangular, margin crenate, acute ; fruiting calyx 6.0-6.5 cm long, 3.5-4.0 cm across in the middle, elliptic, inflated, prominently reticulate-veined, persistent, indurated, enclosing a small capsule. Corolla infundibuliform, 5-lobed, glandular puberulous without, glabrous within ; tube 1.6-2.0 cm long ; lobes imbricate in bud, 3.0 x 1.5 mm, triangular, irregularly crenate, plicate inside, 3-veined, distinctly reticulate within. Stamens 5, epipetalous, inserted below the throat ; filaments 1 mm long, glabrous ; anthers 1.5 mm long, oblong, dorsifixed, longitudinally dehiscent. Disc very thin, annular. Carpels 2, syncarpous, 2.0-2.4 cm long, glabrous ; ovary 2.5 mm long, ovoid to subglobose, bilocular, ovules subanatropus, many on axile placenta ; style 2.0-2.2 cm long, slender, filiform ; stigma 1 mm long, bilobed-capitate. Capsules 1.5 cm long, 1.2 cm diam., globose to subglobose,



Przewalskia tangutica Maxim.
Figs. a-f : a. Habit. b. Flower. c. Calyx. d. Corolla slit open showing stamens. e. Stamen. f. Carpel.

glabrous, circumscissile in the upper half, pericarp membranous, veined. Seeds brown, 2.5 × 2.3 mm, obliquely sphaeroidal, reticulate, with curved ridges, micropyle surrounded by 10-12 raised, thick cells ; embryo curved, cotyledons linear ; albumen copious, fleshy.

Fls. : June-July ; *Frts.* : July-Sept.

Distribution : India (N. Sikkim) and W. China (Ginghai-Xiziang Plateau).

Habitat : Sandy micaceous soils in cold arid areas between 5200 and 5400 m altitude.

Specimens examined : Sikkim, between Tista river and foot-hill of Dorji la alt. 5200 m, 1 August, 1987, *M. Sanjappa* 18507 (CAL) ; *Raju & Singh* 8006 (SHC) ; *Satish Kumar* 6135 (TBGT*) ; Between Tista river and Kerang, near Yak huts, alt. 5400 m, 2 August 1987, *M. Sanjappa* 18543 (CAL).

Pollen grains : Pollen 3-colporate, ectocolpium 35 × 4 μm ends broadly round, endocolpium circular 6 μm. Exine reticulate, heterobrochate, muripsilate ; exine 2 μm thick, sexine thicker than nexine, columellate. Grain size 40 × 38 μm (37-45 × 30-44 μm), prolate sphaeroidal under LM (present observation). Ora lalongate furrow membrane with granuliferous processes, exine reticulate under SEM (Lu & Zhang *l.c.*).

Notes : Although the species is known only from the above indicated localities in Sikkim, a large number (*ca* 300-400) of plants were seen growing at the foot-hill of Dorji la especially near Yak huts, while in the adjoining Kerang area very few (*ca* 4-5) plants were noticed. However, a number of skeletons of the inflated calyx were seen scattered in most of the pools, puddles and even along the margins of smaller lakes.

It is not known whether Yaks and other wild animals feed on the plant. It will be interesting to note if the Tail-less Rats, inhabiting the alpine zone of Sikkim, feed on the fruits of this species.

Among the 6 flowers dissected, 4 showed normal 5 stamens, while one flower showed 6 stamens (4 distinct and 2 together).

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